

REMARKS

Claim Objections

Claims 30-32 were objected to because the claims recite “the transceiver” that was indicated as lacking antecedent basis. Claim 21, from which claims 30-32 depend is amended to provide antecedent basis for this term. Therefore, it is submitted that the objection is overcome.

Claim Rejections

Claim 21 was rejected under 35 USC 102(e) as being anticipated by Akram (US Pat. No. 6,472,242). Claim 21 is amended to include the limitations of claim 26 (now canceled) and additional limitations. Claim 26 was rejected under 35 USC 103(a) as being unpatentable over Akram in view of Lauf (US Pat. No. 5,969,639). The Office Action conceded that Akram “does not teach a remote data processing system and wherein the data transmission circuitry comprises a wireless transceiver to transmit the processing conditions to the remote system.” Lauf was cited for this element. It is submitted that no adequate motivation has been provided to combine the teachings of Akram and Lauf and therefore a *prima facie* case of obviousness has not been made. In addition, it is submitted that Lauf teaches away from the claimed combination. Also, additional limitations are added to those previously recited in claim 26 providing additional distinction over the prior art.

Akram teaches “External circuitry 12 includes communication devices in other embodiments of the invention to transmit process conditions,” column 3, lines 53-55. The Office Action proposed the combination of “transmitter 750 and antenna 770” of Lauf with the teachings of Akram “in order to eliminate hard wire connection outside the process environment which interferes with probe placement or rotating environment.” However, it is not understood how the RF device of Lauf would aid “probe placement” allow “rotating environment” if added to the apparatus of Akram. It is not clear if the Office Action considers external circuitry 12 of Akram to be inside or extend outside a “process environment.” If external circuitry 12 of Akram is considered to extend “outside the process environment” then there is still a hard wire connection (connections 14) from the process environment (workpiece 10) to “outside the process environment” even

where the RF transmitter of Lauf is added to resistance thermometer 16. It is not clear how replacing a hard wire connection that is “outside the process environment” would affect probe placement or have other benefits.

The resistance thermometer 16 of Akram is not disclosed as being inside a “process environment” or “rotating environment.” Connections 14 may terminate at a resistance thermometer 16 or digital computer (see column 3, lines 47-53) which do not appear to have any protection or structure that would suggest they are located in a process environment. Thus, replacing wired connections from resistance thermometer 16 to some other external unit by an RF connection would not appear to affect “probe placement” or allow “rotating environment.”

Replacing external circuitry 12 of Akram with an RF transmitter and antenna would not appear to provide “leads connecting the substrate to the electronics module for transmitting signals between the substrate and the electronics module, the leads providing a flexible connection that allows relative movement between the substrate and the electronics module” of claim 21. Thus, it is submitted that there is no motivation has been provided to combine the references to obtain the claimed combination.

Lauf appears to teach away from an apparatus with the structure of claim 21. In particular, Lauf teaches the advantages of a wireless connection from a substrate, “the wires interfere with the placement of probes,” column 1, lines 45-46. “Hard-wired wafer cannot be used to measure temperatures in a rotating environment,” column 1, lines 48-49. In contrast, claim 21 recites “leads connecting the substrate to the electronics module.” Thus, Lauf appears to teach away from the claimed combination of elements. Therefore, it is submitted that no *prima facie* case of obviousness has been made (see MPEP 2143.01 Suggestion or motivation to modify the references: “The prior art must suggest the desirability of the claimed invention”).

In short, claim 21 as amended includes three components “a substrate,” “an electronics module” and “a remote data processing system.” In addition, claim 21 recites “leads connecting the substrate to the electronics module” and “the data transmission circuitry [of the electronics module] comprises a wireless transceiver to transmit to the remote system.” Thus, claim 21 is limited to a system having these three components and the specific connections between them. Akram has a workpiece 10 and resistance

thermometer 16 connected by connections 14. Lauf has a wafer 10 and an external receiver linked by RF communication. However, neither reference appears to teach or suggest a three-component system having leads from a substrate to an electronics module and RF communication from the electronics module to a data processing system. Lauf appears to teach away from such a system because Lauf identifies problems with a hard-wired wafer.

In addition, claim 21 as amended includes the limitations “a substrate having a first perimeter” and “an electronics module having a second perimeter that encloses the same or less area than the first perimeter.” The “external circuitry 12” of Akram does not appear to be disclosed as having a particular extent with respect to the substrate and therefore appears not to disclose this limitation. Claim 21 as amended also recites “the leads providing a flexible connection that allows relative movement between the substrate and the electronics module.” This limitation further distinguishes over apparatus having components with fixed relative positions. Therefore, it is submitted that claim 21 is additionally allowable over the cited prior art.

Claims 22-36 and 45 depend from claim 21 and are therefore submitted to be allowable at least for depending from an allowable base claim. In addition, these claims include additional claim features that are not taught or suggested by the prior art. Claim 23 is amended to clarify the claim language. Claim 29 is amended to depend from claim 21 and to clarify the function of the remote system.

Claims 29 and 34 recite limitations regarding “the remote system.” Claims 29 and 34 were rejected under 35 USC 103(a) as unpatentable over Akram as modified by Lauf and further in view of Schwartz. Claim 29 as amended includes, “the remote system is configured to process the output signal using calibration coefficients to provide a final output value. Claim 34 includes, “the remote system is a microprocessor controlled device.” These limitations do not appear to be taught or suggested by the cited combination.

Schwartz does not appear to teach or suggest a particular location for adjustment operations such as that of claim 29. Therefore, claim 29, which is limited to the remote system, is submitted to be allowable over this combination. In rejecting claim 34, the Office Action referred to the rejection of claim 23 stating “Schwartz advantageously

taught the system with microprocessor control.” However, such control is not taught as occurring in a remote system such as that of claim 34. Therefore, merely using a microprocessor at some other location does not teach this element. Because this element is not shown by the cited combination of references, claim 34 is submitted to be additionally allowable.

Claim 30 was rejected as unpatentable over Akram in view of Larson (US Pat. No. 6,651,488). The Office Action acknowledged “Akram does not expressly teach a transceiver transmits and receives RF signals.” “Transceiver system 28” of Larson was cited for this claim element. However, Larson describes “wireless interrogation system 28,” column 4, lines 41-42, that appears to have no wires or leads connecting to substrate 14. In contrast, claim 21 from which claim 30 depends recites “leads connecting the substrate to the electronics module.” Thus, Larson does not appear to suggest the structure of claim 30 but rather, Larson (like Lauf) appears to teach away from the claimed structure that has both wires and wireless communication. The motivation cited to modify Akram with the interrogation system of Larson was “saving power on the isolated substrate having limited supply of power by transmitting only intermittently.” However, the substrate of Akram does not appear to be isolated because it is connected via connections 14. Akram discloses “An electrical signal entering via one of electrical interconnects 40, 41 passes through temperature sensing device 30a and exits through the opposite electrical interconnect,” column 7, lines 11-14. Akram also discloses, “Interface connection 18 is configured to provide electrical coupling of electrical interconnects 40, 41 and the respective temperature sensing devices 30 with circuitry 12 external of electronic device workpiece 10,” column 4, line 64 - column 5, line 1. Thus, workpiece 10 of Akram appears to receive power from circuitry 12, which includes connections 10. Replacing such a hard wired system with a wireless system and an isolated substrate would appear to create a problem of “the isolated substrate having a limited supply of power.” Therefore, modifying Akram to use a wireless interrogation system such as that of Larson would appear to be contrary to the cited motivation. In addition, the substrate of claim 30 is not isolated as there are “leads connecting the substrate to the electronics module.” Therefore, it is not seen how the cited motivation could lead to the claimed structure.

Claim 31 was rejected over a combination of Akram, Larson and Lauf. The Office cites Lauf as “connecting RF wireless communication interface with the conditioning circuit to eliminate wiring.” However, it is not seen how this provides a motivation to achieve a structure including “leads connecting the substrate to the electronics module.” In particular, if elimination of wiring is cited as a motivation it is not clear how this suggests the desirability of the structure of claim 31 that requires leads.

Claim 32 recites “the transceiver transmits and receives sonic signals.” Output pad 26 of Smesney was cited as teaching this claim element. The motivation cited to combine Smesney with Akram was “to provide alternatively mechanical, optical or acoustic (sonic) connection to external output device. Having alternative apparatus useful for performing the same function provides for advantageous design choices.” It is unclear what is meant by “advantageous design choices” and because any advantages that might be provided have not been identified in the Office Action, it is submitted that a prima facie case of obviousness has not been made with respect to claim 32. Therefore, it is requested that the rejection be withdrawn.

Claim 36 is amended to clarify antecedent basis for a claim element.

Claim 45 is amended to clarify the antecedent basis referenced in claim 21. Claim 45 recites “in a first position the electronics module is above or below the substrate, and in a second position the electronics module and the substrate are displaced from each other such that the first and second perimeter do not intersect.” Claim 45 was rejected as anticipated by Figure 1 of Akram. However, Figure 1 of Akram appears to show the electronics module in a single position with respect to the substrate. It is not clear whether this is cited as the first position or second position but in either case it appears that the two positions of claim 45 have not been shown. Therefore, claim 45 is submitted to be additionally allowable.

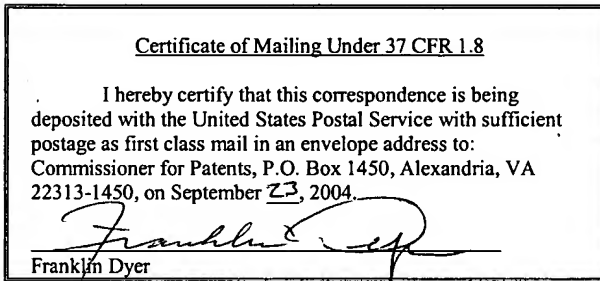
New claims

Claims 46-54 are added by this amendment. Claims 46-54 are believed to be supported throughout the application and in particular by Figures 1A-F, 2 and 3A. Claims 46-54 are directed to subject matter that is related to the subject matter of pending claims

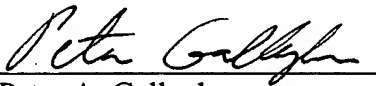
21-36 and 45. Claims 46-54 are submitted to be allowable for similar reasons to those given with respect to claims 21-36 and 45.

Conclusion

Accordingly, it is believed that all claims are now in condition for allowance and an indication of their allowance is requested. However, if the Examiner is aware of any matters that should be discussed, a phone call to the undersigned attorney at (415) 318-1160 would be appreciated.



Respectfully submitted,

 9/23/04
Peter A. Gallagher Date
Reg. No.47,584